Amendments to the Specification:

Please replace paragraph **[0001]** with the following rewritten paragraph **[0001]**:

[0001] This application is related to and claims the benefit of U.S. Provisional Application No. ~~60/319,745~~60/453,998 entitled ~~MULTI-HOP BRIDGE FOR TRANSFERRING DATA IN A WIRELESS NETWORK filed on December 2, 2002~~BLOCKING IMPEDANCE filed on March 12, 2003.

Please replace paragraph **[0005]** with the following rewritten paragraph **[0005]**:

[0005] When a circuit is branch as shown in figure 3, the fault signal will take different paths depending on the fault site and the branching locations. Should a fault occur on branch segment C, a fault recorder at the open end of branch segment C will record the traveling wave that reflects between the fault and open end of segment C. The fault in segment C, also generates a traveling wave that travels toward segment A. When this traveling wave reaches the intersection of segments A, B and C, the traveling wave splits and continues onto segments A and B. This split traveling wave reflects off the open end of segment B, and off a significant impedance change along segment A. The reflected wave from the open end of segment B splits at the intersection of segments A, B and C. This split traveling wave ~~splits~~ reflects off the fault in segment C, and off a significant change in impedance on segment A. Likewise, the traveling wave that reflects from the significant impedance change on segment A will split when it reaches the intersection of segments A, B and C, and continue onto segments B and C. The traveling wave created by the fault in segment C seen on segments A and B is therefore a combination of -multiple reflections off the fault and significant impedance changes in segments A and B. A fault recorder at the open end of segment B would therefore record a complex wave shape that consists of multiple reflections.

Please replace paragraph **[0007]** with the following rewritten paragraph **[0007]**:

[0007] The fault in segment C would create a simple traveling wave that reflects between the fault and open end of segment C. A fault recorder at the open end of segment C could effectively capture the traveling wave that is isolated between the fault and open end of segment C, and use the traveling wave to estimate the fault location. Similarly, a fault recorder

at the end of segment B could effectively capture a simple traveling wave generated from a fault on segment B, and use the traveling wave to estimate the fault location. A complexity occurs when the fault is in section A.

Please replace paragraph **[0010]** with the following rewritten paragraph **[0010]**:

[0010] Further, this invention ~~describes~~ is embodied in a method of controlling the path taken by the traveling wave that results from a cable fault on a power distribution circuit. By controlling the path taken by the traveling wave, a more cost effective and deterministic means of fault estimation can be achieved. This method allows for a blocking impedance to be installed at any desired ~~locations~~ location within a circuit. The blocking impedance provides a reflection point for the traveling waves. Further, this allows a fault recorder to be installed at any desired location to record traveling waves over controllable cable sections.

Please replace paragraph **[0021]** with the following rewritten paragraph **[0021]**:

[0021] The blocking impedance can be achieved using a resistor, inductor, ferrite or similar passive device in the neutral line at the desired location. A resistor is not a practical solution in terms of size and cost, when designed for a power distribution system. An inductor could be used, but would need to be designed to handle normal circuit conditions as well as fault conditions. Under fault conditions the inductor would be subjected to currents many times higher than that of normal circuit operations. The cost of the resulting coil capable of operating under all circuit conditions would be quite significant. Although the coil could be relatively inexpensive, it would require significant testing, which would add to the cost. Further, it would require changes to grounding practices that could be objectionable to some electric utilities. A benefit of the coil is that it could be designed so that the impedance it presents remains essentially constant over the applied current range. Both the resistor and inductor would be installed in series with the neutral line. A ferrite would be installed around the neutral line, removing the need to open the line for installation. Since the ferrite is not installed in series with the neutral line and it does not carry current, and its design requirements are significantly reduced. Further, use of a ferrite would not affect grounding practices. Conversely, a ferrite saturates at high currents typical of ~~that~~ those produced by cable faults. The ferrite implementation therefore has limitations that are overcome by using a coil. The resulting

impedance provided by the coil and ferrite are frequency dependent. Therefore, the coil and ferrite are specifically designed to block traveling wave of specific bandwidths.

Please replace paragraph **[0023]** with the following rewritten paragraph **[0023]**:

[0023] Likewise, a blocking impedance using a coil could be installed at the fused or feed end of a circuit. This would effectively create a simulated open point for traveling wave reflections. This would be particularly useful in situations where it is desirable to locate a fault recorder at the fused or feed end of the circuit. This would create a reflection point where one many not otherwise exist. This method could also be used to segment an otherwise excessively long cable into more definable lengths to facilitate fault location estimation. There are limitations on the effective cable length that fault estimators can function. By effectively segmenting a cable using blocking impedances, one can extend the usefulness of a fault location estimator. Figure 5 illustrates a blocking impedance installed at the feed or fused end of a cable circuit, and Figure 6 illustrates a method for segmenting a long cable into measurable segments to facilitate fault location estimation. Note also in Figure 6 that an optional two-channel fault recorder could monitor segments on either side of the pseudo open-point created by the ~~blocking~~ installed blocking impedance.

Please replace paragraph **[0024]** with the following rewritten paragraph **[0024]**:

[0024] Figure 7 illustrates a branched circuit with a ferrite blocking impedance installed on ~~the neutral line of~~ cable segment B, at the intersection of segments A, B and C. The ferrite creates an effective blocking impedance to traveling waves on cable segments A and C. Therefore, a fault recorder at the open end of segment C, would record a simple traveling wave that reflects from a fault on segments A or C and the open end of segment C. This blocking impedance blocks multiple reflections from connected non-fault branched cable sections, enabling an effective and deterministic method of fault location estimation on branched circuits. When a fault occurs on cable segment B, the ferrite blocking impedance will often saturate and lose its blocking impedance properties. If a fault recorder is located at the open end of segment B, a fault on segment B that causes the ferrite to saturate will not affect the traveling wave that reflects between the fault and open end of segment B.

Please replace paragraph **[0028]** with the following rewritten paragraph **[0028]**:

[0028] The above discussion has centered around a practical application of this invention based on interfacing with existing power distribution circuits and circuit components. Emphasis was placed on adding the blocking impedance to the neutral line only because of ease of access to this line at junction or branching points. A cables' center conductor or hot line is often terminated with an elbow or other similar commercial terminator, leaving limited access. Further, a hot line component must be designed for all conditions experienced by the cable circuit, including faulted conditions where current levels can reach many times that of normal operation. There are, for example, commercially available terminating impedance devices called reactors that can be tuned to match a desired frequency response. A reactor is large and expensive, but has the added benefit of arc suppression which limits the fault current. Use of reactors is typically limited to power substations.